GEOG 4100/01: Watershed Assessment and Analysis (6 credit hours)

First 6 week Session, June 5 – July 12, 2012
Class times: TR 9:00am – 3:00pm
Room: SO 4080

Instructors: Dr. Mark Patterson (lead instructor)
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Note: students **must** contact Dr. Patterson prior to enrolling in course (mpatters@kennesaw.edu). Also, any questions concerning the course should first be directed to Dr. Patterson unless otherwise noted.

IMMEDIATE ATTENTION REQUIRED

Log on to Vista and complete the "to do" list under the TO DO BY JUNE 5 folder.

COURSE DESCRIPTION

This is a field based course in which students will conduct a watershed assessment. Working with the Watershed Alliance of Sandy Springs and Georgia Adopt-A-Stream, students will become certified in water quality testing and will collect and analyze water quality data. Field work in such things as community inventory of species and stream restoration will be undertaken. In addition, students will use GIS to create land use maps of the Long Island and Marsh Creek watersheds to examine land use change since 2001. Students will present their final report to the Alliance at the end of the course. Class will meet 2 times a week for approximately 6 hours each time. Note that we reserve the right to keep you until your task for the day is complete. The majority of this course will be conducted outside at the study site. Prerequisite: Any science or geography lab and permission of instructor.

COURSE OBJECTIVES

By the end of the course students will be able to:

- Learn proper methodology and field techniques as it relates to watershed assessment and analysis;
- Collect and analyze water data and conduct a community inventory of select species to determine watershed processes and problems;
- Apply geographical and environmental principles to examine and restore the physical processes found in a Georgia stream and/or watershed;

- Identify and investigate the changing interconnections humans have with the natural environment from a geographic perspective;
- Create, understand, and interpret land use maps and map images from aerial photographs
- Know the fundamentals of using basic geographical/geospatial software (GIS/RS) and hardware (GPS) in an environmental context.

TEXT
There is no required text for the course, however, you are required to do two things:

1. Read the (free!) readings assigned in class. It is expected that you read them and, when applicable, answer the provided questions (see syllabus and GVV>Learning Modules).

2. **Purchase your portion of the lab supplies. These supplies are available at the bookstore, where you will take the ticket found at the GEOG 4100 shelf and present it to the cashier. The bookstore will deliver the supplies to your fabulous instructors. You will need to buy these before the first day of class. Present Dr. Patterson with the original receipt from the bookstore showing you have purchased your share of the supplies on Day 1 of the class. The cost is approximately $93, which is not too bad for a 6 credit hour course. Note: this purchase is not optional. If you take this course, you will make this purchase. Failure to make the purchase and/or submit the receipt by the second day of class will result in a letter grade deduction.**

COURSE COMPONENTS

These assignments are designed for you to improve your understanding of the course content, as well as develop and/or enhance your pedagogical skills. During this course, you have several ways to demonstrate your command of these concepts/skills:

Article Question Sets: You are expected to read and answer the questions for required articles. Your lowest grade above a 0 for the questions will be dropped (Zeros always count). You will submit your article answers by 8am on the day it is due, using the link found in the module. Copy and paste your answers into the textbox. No attachments. Attachments will be given a zero, even if the work is exemplary. Each answer will be 2-4 sentences. Maximum half credit if this length is not met. No name = no grade.

Analysis: You will be conducting four types of analyses over the duration of the course – water quality, land cover mapping and analysis, a visual survey and community inventory. These analyses are equivalent to lab assignments. While each analysis varies by topic, all relate directly to watershed assessment and analysis, field methodologies and techniques, and the watershed environment. Answers, when collected in the field, will be summarily entered into online database. Failure to submit in a timely fashion (i.e. within 24 hours of collection) will be penalized with a 50% deduction in the assignment's overall grade. In other words, timeliness is of utmost importance and time management is essential. Further guidelines will be provided in class and/or via GVV.

Final Report: Working collectively, students will submit a final report that contains their objectives, methods, findings and discussion. A copy of the report will also be turned in to the Watershed Alliance, the National Park Service, and any other entity who has aided in this project. This final report is due at 1pm on July 12. Please keep in mind that failure to upload the digital copy properly is not the fault of the faculty, ITS, Georgia View Vista etc. Note that no hard copies are required unless the final report is submitted late.

Final Presentation: Student will give an oral presentation of the final report on the last day of class. This presentation will be at 2pm on July 12. The audience will be members of the Watershed Alliance and the course instructors.

GRADING: During the course of the semester, you have several ways to demonstrate your command of these concepts. Evaluation and weighted grade assignments are as follows:

Assignment	Percent
Water Quality Analysis	15
Land cover Mapping and Analysis	10
Community Inventory	10
Visual Survey	10
Article Question Sets	15
Final Report (30%) and Presentation (10%)	40
Total	100

Grading of Final Report: Due to time and resource constraints, you will be working in groups. Do note that you will be held accountable for you work within the group. You will be given the opportunity to rate the performance of your group members at the end of the course. You will grade your fellow peers on overall contribution to the project (data collection, writing, work ethic and so on). These grades, while not part of the grading rubric, will be used to make any necessary corrections for the individual against the group grade. Unanimous underperformance may result in grade deductions. For example, if a group received a grade of a B, with student input, one group member could receive an A, two with a B and one with a D.

Grade distribution
A >90% B 80-89.99% C 70-79.99% D 60-69.99% F <60%
There are no curves in this course. So don't ask.

Things to note:
- Incomplete, sloppy, or late work will have a grade to reflect it.
- Unexcused late work will receive an automatic 50% deduction.
- No name = no grade = no exceptions.

Attendance and Participation Policy
Attendance and participation are mandatory. Each missed class will result in an automatic 10% deduction from your final grade. Each class in which you are tardy by more than 15 minutes will result in an automatic 5% deduction from your final grade. Each class in which you do not actively participate will

result in a 5% deduction from your final grade. Due to the nature of the course, you are not guaranteed the ability to make up work assigned during a missed classed.

Class Particulars: We will create up to 6 groups of 4 students. Each group will be assigned specific sites (2 for Long Island Creek and 1 for Marsh Creek) for which you are responsible for water quality testing and other environmental monitoring/assessment activities. Students are responsible for their own transportation to field sites. You must arrange to carpool. There will be no more than 8 vehicles permitted in the field on any given day. You will be asked to leave [and therefore get a 10% deduction on your final grade] if you drive without passengers and/or do not abide by these rules.

Statement on Academic Integrity
Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section II of the Student Code of Conduct addresses the University's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the University Judiciary Program, which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement.

If you falsify any data collected, you and members of your group will automatically receive an F in this class and be reported to SCAI.

Field days

- The weather will play a significant role in our data collection. Rain events can alter water quality and more importantly affect safety; thus if it rains, we will not be collecting water samples. However, you will still be responsible for collecting water samples from your assigned sites – even if it means going out with your group on a non-scheduled class day. The syllabus WILL CHANGE if a rainy day does occur.
- You must wear the Watershed Alliance t-shirt when you are doing field work. [And really, how many other classes give you a free t-shirt?]
- Each class day, you will be expected to bring a lunch. Most days (particularly those days in the field) we will be working for the full 6 hours plus time spent in the lab afterwards preparing and analyzing samples.
- You will be getting wet. Bring a change of clothes and shoes. If you have waders, bring them. A small towel may also be useful.
- It will likely be hot and sunny. You may be inclined to bring sunglasses, a hat and/or sunscreen for sun protection. You probably want to bring water for hydration.
- We will be working in areas in which potentially unpleasant things (snakes, stinging insects, poison ivy, etc.). Please be aware of your surroundings at all times. If you are highly allergic to any plant or animal, please bring with you any necessary medications etc. and let your instructors and if necessary, your group members, know of your situation. You will be given a first aid kit so make sure that all group members know where it is at all times, and more importantly, how to use it.

- Each group will be given a bag which contains your field supplies. You and your group members are responsible for the contents of the bag, which must be returned and inventoried at the end of the course. Lose the bag and/or contents and you and your group loses a letter grade.
- Each field day a different group will be responsible for bringing 2 bags of ice to the field to be used to store the water samples.
- Bring a digital camera (one per group), a GPS unit (we will give your group this) and a can-do attitude.

Lab days

- You will be using an incubator for bacterial testing. You will be responsible for obtaining correct data – even if it means completing your test results on a non-scheduled class day.
- You will be required to work in the GIS lab. You will adhere to all GIS lab policies, as well as policies at the department, college and University levels.

COURSE OUTLINE:

The instructors reserve the right to change the course schedule as the class progresses. Below is a tentative overview of the course dates and content to be taught. The weather will play a significant role in what we will be doing each day. **You MUST check GeorgiaView Vista (GVV) before heading out to the field each day.**

Date	Activity	What's Due
Before June 5		• Take pre-class survey online (link posted on GVV) • Sign GIS lab policy form • Read last year's final report • Buy supplies at bookstore
Module 1		

June 5	• AAS Certification (Physical, Bacterial) with Sharon Smith and Jason Ulseth
	• Administrivia
	  ○ Syllabus
	  ○ Groups
	  ○ Previous studies
	• Data collection/recording protocol
		• Receipt for supplies from bookstore
		• Question set for last year's report
		• Read Getting to know your watershed

Module 2		
June 7	• Tour of Sites with Dick Farmer and Patty Berkovitz • Meet at Dr. Farmer's House 6080 Glenridge Dr., NE	• Question set for Streams in an Urban Landscape • Read Visual Stream Survey
Module 3		
June 12	• Field day • Environmental Data collection – Water sampling, Community index	• Question set for Landscape ecology article • Read Monitoring urban forest health • Read How to ID trees • Review Native trees of GA • Read Urban Tree Risk
June 14	• Meet at LIC Site #6 ○ Park Service – Allyson Read • Field day – Visual survey	
Module 4		

June 19	• Meet at North Fulton Govt. Annex
	  ○ Citizen participation – David Fountain
	  ○ Sandy Springs – Angela Parker
	• Field day
		• Question set for Land use planning
		• Review Comp Plan 2025
		• Review Comp Plan 2030

Module 5		
June 21	• Meet at LIC Site #5 ○ Fish inventory with Dr. Bill Ensign • Field day	• Question set for Fish communities article
Module 6		
June 26	• Land use mapping in GIS lab (SO 3022) • Field day	• Question set for Remote sensing article • Read Image Classification Sections 10.3 & 10.4 • Review RS tutorial section on Image Classification and Analysis
June 28	• Bank restoration talk with Mary Lanning • Meet at site #5, LIC watershed, 9am • Streambank restoration with Jack White • Field day	
July 3	• Discussion on final report	
July 5	• All data due. Submit online • We will not meet	• All data • Rough draft of report

July 10	• Work on report	
July 12	• Presentation	• Final report • Post class survey

We reserve the right to change the schedule.